

CLAIM AMENDMENTS

1. (Currently Amended) A steering control apparatus comprising:
a ~~handle steering wheel~~ angle ~~detection-part~~ detector for detecting a rotation angle of a ~~handle steering wheel~~ mounted in a vehicle and ~~sending~~ outputting a ~~handle steering wheel~~ angle signal;
a road surface reaction force torque ~~detection-part~~ detector for detecting a road surface reaction force torque from a front wheel of the vehicle and ~~sending~~ outputting a road surface reaction force torque signal;
a lag arithmetic part, including a first order lag filter to which the road surface reaction force torque signal is ~~inputted~~ input and which has a ~~previously-determined~~ specified time constant, for calculating a steering reaction force torque ~~by using a signal output of~~ by the first order lag filter;
a first motor fixed to the ~~handle and steering wheel~~ for generating the steering reaction force torque ~~on~~ applied to the handle steering wheel;
a first control part for controlling the first motor based on ~~the basis of~~ the steering reaction force torque;
a lead arithmetic part, including a first order lead filter to which the ~~handle steering wheel~~ angle signal is ~~inputted~~ input and which has ~~a the~~ same time constant as the ~~specified time constant first order lag filter~~, for calculating a steering angle signal of the front wheel ~~by using a signal output of~~ by the first order lead filter;
a second motor fixed to the front wheel ~~and~~ for controlling the front wheel angle; and
a second control part for controlling the second motor based on ~~the basis of~~ the steering angle signal.

2. (Currently Amended) A steering control apparatus comprising:
a ~~handle steering wheel~~ angle ~~detection-part~~ detector for detecting a rotation angle of a ~~handle steering wheel~~ mounted in a vehicle and ~~sending~~ outputting a ~~handle steering wheel~~ angle signal;
a road surface reaction force torque ~~detection-part~~ detector for detecting a road surface reaction force torque from a front wheel of the vehicle and ~~sending~~ outputting a road surface reaction force torque signal;
an arithmetic part for calculating a steering reaction force torque by using a ~~previously-determined~~ specified constant, based on ~~the basis of~~ the road surface reaction force torque;

a first motor fixed to the ~~handle and steering wheel~~ steering wheel for generating the steering reaction force torque ~~on applied to the handle steering wheel~~;

a first control part for controlling the first motor based on ~~the basis of~~ the steering reaction force torque;

a correction arithmetic part, including a differential circuit to which the road surface reaction torque signal is ~~inputted~~ input and which has a ~~previously determined~~ differential time constant, for calculating a correction signal ~~by using a signal output of~~ by the differential circuit;

a lead differential correction arithmetic part for inputting the ~~handle steering wheel~~ angle signal to a first order lead filter having ~~a~~ the same time constant as the differential time constant, and adding the correction signal to an output signal of the first order lead filter to calculate a steering angle signal of the front wheel;

a second motor fixed to the front wheel ~~and~~ for controlling the front wheel angle; and

a second control part for controlling the second motor based on ~~the basis of~~ the steering angle signal.

3. (Currently Amended) ~~A~~ The steering control apparatus according to claim 1, ~~which comprises~~ comprising time constant setting means for changing the time constant of the first order lead filter.

4. (Currently Amended) ~~A~~ The steering control apparatus according to claim 2, ~~which comprises~~ comprising time constant setting means for changing at least one of ~~or both~~ of the time constant of the first order lead filter and the differential time constant.

5. (Currently Amended) ~~A~~ The steering control apparatus according to claim 3, wherein the time constant setting means changes the time constant in accordance with a detection output of a driver state detection device for detecting a state of a driver of the vehicle.

6. (Currently Amended) ~~A~~ The steering control apparatus according to claim 4, wherein the time constant setting means changes the time constant in accordance with a detection output of a driver state detection device for detecting a state of a driver of the vehicle.

7. (Currently Amended) A steering control apparatus according to claim 2, ~~which comprises~~ comprising correction signal adjustment means for adjusting a differential value of the road surface reaction force torque and a magnitude of the correction signal proportional to the time constant of the first order lead filter.

8. (Currently Amended) ~~A~~ The steering control apparatus according to claim 1, wherein the ~~handle~~ steering wheel and the front wheel are mechanically coupled with each other.

9. (Currently Amended) ~~A~~ The steering control apparatus according to claim 2, wherein the ~~handle~~ steering wheel and the front wheel are mechanically coupled with each other.

10. (Currently Amended) A steering control apparatus according to claim 1, wherein the ~~specified~~ time constant is ~~set to be~~ in a range from 0.3 sec or more and seconds to 0.7 sec or less seconds.

11. (Currently Amended) A steering control apparatus according to claim 2, wherein the ~~specified~~ time constant is ~~set to be~~ in a range from 0.3 sec or more and seconds to 0.7 sec or less seconds.